

IN THE CLAIMS

1. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
- (b) D-ribulose-5-phosphate-3-epimerase; and
- (c) phosphoglucoisomerase;

wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 2.0 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 225, 619 and complements thereof.

2. (Previously presented) The substantially purified nucleic acid molecule according to claim 1, wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 225, 619 and complements thereof.

Claims 3-9 (Canceled)

10. (Previously presented) An isolated nucleic acid molecule comprising a sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 2.0 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 225, 619 and complements thereof.

11. (Previously presented) An isolated nucleic acid molecule, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.

12. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 1 or complement thereof.

13. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 4 or complement thereof.

Claim 14 (Canceled)

15. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 27 or complement thereof.

16. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 225 or complement thereof.

17. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 298 or complement thereof.

18. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 311 or complement thereof.

19. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

20. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 569 or complement thereof.

21. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 619 or complement thereof.

22. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize or soybean 6-phosphogluconate dehydrogenase or fragment thereof, comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 14, 27 and complements thereof.

Claim 23 (Canceled)

24. (Previously presented) A substantially purified nucleic acid molecule that encodes a maize or soybean phosphogluconate pathway enzyme or fragment thereof, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
- (b) D-ribulose-5-phosphate-3-epimerase;
- (c) ribose-5-phosphate isomerase; and
- (c) transaldolase;

wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 0.2 X SSC at 50°C to a nucleic acid molecule

comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs:

4, 298, 311, 569 and complements thereof.

25. (Previously presented) The substantially purified nucleic acid molecule according to claim 24, wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.

26. (Previously presented) An isolated nucleic acid molecule comprising a sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 0.2 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.

27. (Previously presented) The isolated nucleic acid molecule according to claim 26, wherein said nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 4, 298, 311, 569 and complements thereof.

28. (Currently Amended) ~~An~~ A substantially purified nucleic acid molecule that encodes a maize transketolase enzyme or fragment thereof comprising a nucleic acid sequence of SEQ ID NO: 356 or complement thereof.

29. (Previously presented) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 225, 619 and complements thereof.

30. (Previously presented) The isolated nucleic acid molecule according to claim 11, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 14 or complement thereof.

31 (Previously presented) An isolated nucleic acid molecule, wherein said nucleic acid molecule consists of a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619 or complements thereof.